

<b>Notice of Allowability</b>	Application No.	Applicant(s)
	10/016,142	KUBO ET AL.
	Examiner Alexander G. Ghyka	Art Unit 2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to RCE of 7/21/2004.
2.  The allowed claim(s) is/are 9-17.
3.  The drawings filed on 17 December 2001 are accepted by the Examiner.
4.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All    b)  Some\*    c)  None    of the:

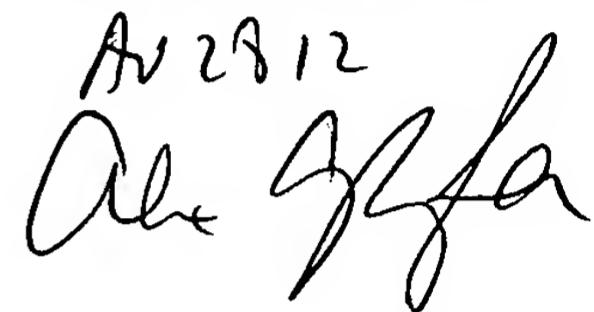
1.  Certified copies of the priority documents have been received.
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
7.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

ALEXANDER GHYKA  
PRIMARY EXAMINER

Av 28/12  


#### Attachment(s)

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application (PTO-152)
6.  Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.

**DETAILED ACTION**

***Examiner's Amendment***

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

**Cancel Claims 1-8.**

This application is in condition for allowance except for the presence of claims 1-8 drawn to a semiconductor device non-elected without traverse. Accordingly, claims 1-8 been cancelled.

***Allowable Subject Matter***

Claims 9-17 are allowed.

The following is an examiner's statement of reasons for allowance: The closest prior art known to the Examiner is listed on the attached PTO 892 and IDS forms. None of the cited references or combinations thereof disclose or suggest doping impurities of a first conducting type into a surface of a collector layer of a second conducting type and thermally diffusing the impurities of the first conducting type to form a base region of the first conducting type in the surface of the collector layer, forming a base electrode

layer on a surface of the base region and forming an insulating film on a surface of the base electrode layer; and forming a trench, which does not reach the collector layer by etching the base region through an opening created as part of the base electrode layer and the insulating film and forming a sidewall on an inside wall of the trench as required by Claim 9 and dependent Claims thereof. Moreover, the cited prior art does not disclose or suggest forming a base electrode layer made of polysilicon containing impurities of a second conducting type on a surface of the collector layer and forming an insulating film on a surface of the base electrode layer; forming a trench by etching the collector layer through an opening created at part of the base electrode layer and the insulating film and doping impurities of the second conducting type into the trench and into the base electrode layer as required by Claim 13 and dependent Claims thereof. Therefore, the present Claims are allowable over the cited prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander G. Ghyka whose telephone number is (571)

272-1669. The examiner can normally be reached on Monday through Thursday during regular business hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John F Niebling can be reached on (571) 272-1679. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AGG  
August 9, 2004

ALEXANDER GHYKA  
PRIMARY EXAMINER

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Alex Ghyska